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Artistic Autonomy or Functional Determinism: The Dilemma of Form in Modern Architecture

There was a wonderful moment in modern architecture when it seemed possible that architectural form could emerge directly from the functional arrangement. At that moment of programmatic euphoria architecture was considered a strictly technical response to the needs of structure and use - functional order translated into the order of form[1] - thus eliminating all subjective elements and all aesthetic mediation from the building process.

This is the position taken by those architects from the 20s and early 30s who could be labelled radical rationalists: Hannes Meyer, Hans Wittwer, Otto Haesler, Hans Schmidt, Mart Stam, J.A. Brinkman, L.C. van der Vlugt, Willem van Tijen and Johannes Duiker, among others. Some of these architects put forth their ideas and theoretical studies in what have become today mythified publications and all of them produced some projects and buildings which are considered among the best examples of modern-movement architecture. Various reflections can be made around these simple, well known facts.

Firstly, although it is valid to view the issue from this perspective, a close look at each of the architects, and even at the work produced by each at different points in their careers, reveals a diversity in formal structure due to the subjective and arbitrary personal factor which plays a role in every process of definition of formal composition, including architecture. Without wishing to categorize or place too much importance on terms, we can talk of personal poetics within this group of radical Rationalists. Hans Schmidt and Otto Haesler are two of the purest representatives of this strict Rationalism or Functionalism; Schmidt by virtue of his rigorous typological investigations resulting in a series of plans for dwellings - some which were actually built, others not - and projects such as the Basel Museum of Art, the school in Lenzburg and the women's residence in Basel; and Haesler with his more strictly rationalist buildings such as the Siedlung Georgsgarten, the school in Celle and the home for the elderly in Kassel. The extreme Rationalism of some of Hannes Meyer's buildings, such as the German trade union school in Bernau or the project for the Worker's Bank in Berlin, is tempered by a certain romanticism in others of his works such as the Petersschule project in Basel or the Palace of the Society of Nations in Geneva. The Dutch rationalist architects share certain characteristics yet at the same time differ among themselves. Mart Stam, the enthusiastic champion, internationally, of modern architecture, aimed to achieve a severe impersonal style and, in keeping with that, usually worked in collaboration with other architects with results such as his three houses in Stuttgart's Weissenhof Siedlung, and both the home for the elderly and the Siedlung Hellerhof in Frankfurt-am-Main.

The projects designed by L.C. van der Vlugt, working in collaboration with J.A. Brinkman, reflect an exquisite command of composition and a taste for the less rationalist circular plans as evidenced in the tea room of the Van Nelle factory or the circular staircase and the design of the carpets and furniture of the also magnificent Van der Leeuw solarium/house. Willem van Tijen exemplifies typological brilliance and subtlety in his treatment of the exteriors of the Bergpolder and Plaslaan housing blocks in Rotterdam.

Lastly, Johannes Duiker supports the concept of strict Functionalism in his writings. However, his fine works - counted among the landmarks of modern-movement architecture - are testimony to the fact that form in architecture cannot be the direct, immediate result of the functions which the structure must fulfil, but rather requires certain mediatory elements.

In Duiker's work the two mediating factors in the definition of the form are the abstract tool of geometry and the concrete element of the solid structure. Throughout the course of his career as an architect Duiker used geometry to structure his projects, designing the floor plan according to a specific geometric formula. Some of Duiker's most important projects are based on the 45º angle: in the Zonnestraal sanatorium in Hilversum it is the angle of the relationship among the pieces, in the open air school in Amsterdam it is the determinant in the layout of the building as a whole and in the Nirvana apartment building in The Hague it is applied in the corner finishings. In other works he uses different geometric figures as the matrix of the layout of the parts: the hexagon in the plan for the residential apartment buildings published in the book *Hoogbouw* and the octagon in the open air school project in Zonnestraal, Hilversum; the servants' residency in Zonnestraal is designed as a twelve-sided polygon, and a circle, pentagon and rectangle are used together in the competition project for a health resort in Salesel del Elba. Other less rigid, less simple geometric formulas were used in plans for theatres, in the Cineac building in Amsterdam and in the Gand-Hotel, restaurant and the Goiland theatre in Hilversum.

In any case, in Duiker's work geometry is not just an underlying mechanism ordering the formal elements but rather an expressly chosen solution determining the compositional configuration. In addition, in his best works Duiker achieves a powerful architectural form, not only without undermining his functionalist

convictions but precisely as a result of those convictions. In effect, in his search for maximum functional economy Duiker creates the form and substance of the building from what is invariably a strong structure - in the case of these works, of cement - which hardly needs more than a few finishing elements of glass to be complete. The structure - in keeping with the geometry of the plan and strictly articulated through changes in the sections of the columns, the hang of the beams, corbels, overhanging flagstones, and so on - fully defines the form of the building: the structure becomes the building. This link between geometry, strong structure and final form makes the end result of overall composition seem evident; there are two, apparently fixed, configurations in play: the geometric for the functional organization and the structural for the distribution of forces. The problem of form seems not to exist as a personal or stylistic option, however, As we see in the case of Duiker, it makes its presence doubly known when it moves into the arena of what are, in the end, two personal compositional choices - one geometrical, the other structural - which are at the very root of what the building is.
In spite of the observable individual differences among the rationalist architects, their works reflect a certain overlapping of ideas and, in general terms, of results. However, if we consider architecture not on its own but rather in relation to the artistic-cultural panorama of its period, we must recognize the contrast between rationalist architecture and that which characterized avant-garde at the turn of the century: the inorganic, fragmentary, disintegrative concept of the traditional unit underlying modern art in general and manifested in various ways in the different movements. Fragmentation as the artistic principle of a period implied the rupture of the whole unit with its parts, both from a syntactic and a semantic point of view: there is both a separation of the parts from each other and from the whole and a dissolution of the relationship established between that which gives meaning and that to which meaning is given, ambiguous meaning or an empty sign.
The flip side of the priniciple of fragmentation is the principle of *montage*, another key term in understanding modern art[3]. From cubist collage, to dada collage, assemblage and relief, or constructivist collage, relief and counter-relief to dada or constructivist environmental installations and Man Ray and Moholy-Nagy's "painting with lights", photomontages, photograms and light shows[4], modern art is filled with this principle of montage which visibly displays the fragments resulting from modern disintegration.
The term montage, as assembly, can also be applied in a different sense from that used by the most radical avant-garde movements. Moholy-Nagy, for example, refers to "engineering assembly as the economic work principle"[5]. The term here, connected with the concept of assembly line, implies mass production and mechanization, that is, those features that rationalist architecture pursued for itself in its search for the most rational, exact and economical solution.
The early decades of this century offered two artistic alternatives: there was the fragmentation and montage of the avant-garde movements such as Cubism, Elementalism, Constructivism and Dadaism and there were the radical Rationalists or strict Functionalists who repressed that artistic impulse associated with modernity by denying any connection with art and all figurative influences and treated the creation of buildings as a mere construction problem, as the most appropriate technical response to a specific issue of function.
Caught in this double bind, Le Corbusier - with his wish to personalize issues and to be a leader in the architectural vanguard - offered a third alternative in suggesting that the organic/renaissance principle be substituted by a new mechanical/biological principle: one which is neither an attempt to recover the classical 'whole' nor a whole-hearted acceptance of modern fragmentation but rather an alternative which goes beyond both. He proposed a new unit which is the result of a dialectic among the parts - not arbitrary fragments - into which the building has been broken up, the subsystems of functions which are at once relatively autonomous and yet play a role in the function of the building as a whole.
Le Corbusier defines a series of subsystems - that of the structure, of exterior walls, of interior walls, of elements of circulation, of roofing, of sunlight control, of geometry or proportions, etc.[6] - shapes them with the addition of pictorial elements and integrates them into a new unit: the functioning unit of the building. Thus Le Corbusier claimed to have found a solution to all the questions: to the impulse of fragmentation in modern art and to the unity of classical architecture, to the artistry of pictorial and sculptural representations and to the functionality of rationalist architecture. The building emerged from separate parts, but parts which were tied to a function, not arbitrary fragments. The building finally achieved unity but not the classical unity among the parts of the architectural body, rather a freer unity that functions as a whole.
Finally architecture found its link with functionalist ideas substituting, however, the concept of function with the idea of functioning or operation, and replacing the functionalist desire for immediacy with the inclusion of figurative elements in the creation of form.
One could say that with this brilliant compromise solution Le Corbusier falsely closed the gap between the most radically modern art and the most radically modern architecture, two irreconcilable concepts. In keeping with functionalist ideas, his architecture searched for its model in technology and in the work of the engineer but it betrayed the functionalist spirit by including contemporary artistic elements and traditional compositional tools. Unlike

functionalist architecture, his was perceived as art and willingly linked to modern art although, in comparison to more genuinely modern works, its artistry was strongly contained.
Le Corbusier's architectural system gave and continues giving rise to splendid buildings - though in general, today lighter material has substituted the concrete structure and exterior walls- as well as to broadly applied Mannerism in the separation and expressive presentation of the structure, fittings, walls, roof, circulation elements, and so on. Archigram in the 70s and the integration of this approach into today's high-tech aesthetic and production system are the two most extreme examples of the mark it left.
The extraordinary momentum of avant-garde art, particularly painting, affected architecture only to an extent. On the one hand the only concession the functionalist architects, who explicitly rejected artistic expression, made to this new sensibility was simplicity of volume, lightness of material and absence of decoration. On the other hand, though Le Corbusier included modern artistic concepts in his architecture, they were confined within the volumetric parameters of the shell, the governing plans and a system of proportional measurements which controlled those pictorial elements which had already been tempered in his own painting (from Cubism to Purism). Finally, it is important to add that even in those cases where architecture drew directly on one of the avant-garde movements in art, the very nature of architecture itself kept it from being treated in the same terms as painting.
Modern architecture was greatly influenced by Neoplasticism (for example, Le Corbusier's Maison La Roche), however, there is, perhaps, only one work which could be considered truly neoplastic: the Schroeder house by Rietveld. Even there, however, the Neoplasticism is reflected at the level of appearance more than on any in-depth level and is the result of the exceptional client-architect relationship informing the commissioning and building of the house. Van Doesburg and Van Eesteren's attractive proposals demonstrated, in reality, the impossibility of applying Mondrian's neoplastic principles or Van Doesburg's own Elementalism to architecture.
Malevich's Suprematism, the other important avant-garde art movement with architectural possibilities, produced the attractive axonometric volumes of his *Planitas* and the pilot homes and carefully worked sculptures of his plaster *Architectones*, but never generated truly architectural proposals.
It was El Lissitzky who most rigorously explored the question of the step from planes to volume in his *Proun* paintings and who, in addition to Iván Leonidov, proposed the most radical suprematist-based architectural ideas. In effect, El Lissitzky's horizontal skyscraper project (misunderstood in Mart Stam's version, who introduced the leaning supports) is, together with the projects from Leonidov's early period such as the Lenin Institute project and the project for the Centrosoyuz, the most important contribution to the idea of architecture not subject to the laws of gravity. Together with the exceptional case of the Schroeder house and El Lissitzky's and Leonidov's projects which were never executed, the closest thing to a work of architectural scale which avant-garde art left us are certain installations such as El Lissitzky's *Proun* space or Kurt Schwitters' *Merz* constructions.
Modern architecture, caught between impossibility and repression, remained on the fringe of the great artistic explosion of the avant-garde movements. But the artistic will of a period cannot be denied or completely suppressed, not even in a discipline such as architecture, so limited by its own conditions and so marked by its specific needs and technical requirements. Given Functionalism's reductionist approach to form and architecture's exclusion from the world of art, modern architecture, as it evolved, had only indirect means to express something more than its own utilitarian functions. Over the course of decades, architects of the modern tradition aimed for subtle symbolism, deforming the building in the attempt to achieve artistic expression through the building's very form as Robert Venturi criticized many years ago in his book *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*.
In the last twenty-five years a rapid succession of events has taken place. On one hand, following Venturi's own criteria, the architectural shell and the decoration applied to it were considered as two separate concepts which opened the way to false façades, superimposed elements, etc. On the other hand, in keeping with the ideas of Aldo Rossi and other members of the Italian *Tendenza*, the reutilization of traditional architectural models in new contexts resulted in a certain sense of dislocation and rupture. Some time later came the disintegration and breaking up of what was considered as collage architecture, a collision of fragments, old and modern, a good example of which is Stirling and Wilford's New State Gallery of Stuttgart and other projects, either urban or simply architectural which were conceived as collages within so-called postmodern Classicism.
This latter term gave way to another, almost as unfortunate one, which was Deconstruction and to which architects of very diverse tendencies subscribed; some of these, however, readopted in their architecture the processes of free fragmentation and montage associated with the avant-garde Cubists, Suprematists, Constructivists and Dadaists. Frank Gehry, Zaha Hadid, Daniel Libeskind and Coop Himmelblau connected with these avant-garde movements and brought to architecture, almost three quarters of a century later in some cases, the most characteristic features of avant-garde art which modern architecture had not allowed to filter into its own works.
Having reached this point we can ask ourselves: is this the end of the history of contemporary

architecture? Is this how the cycle, set in motion by the Modern Movement, comes to a close? Far from it, I believe there is a great wealth of ideas in modern architecture which remains to be tapped.
The blossoming of artistry and the neo-avantgarde's transposition of the methods applied by the avant-garde artists of the turn of the century, together with the influence of later movements such as Pop Art, is a reality in current architecture which I not only consider inevitable but healthy as well; in the first place, all repression should be done away with, and secondly a new enriching field of experimentation has been opened to contemporary architecture, though I think that many of these works assume, to a fault, architecture's artistic autonomy.
Nonetheless, having demonstrated the impossibility of setting and maintaining architecture apart from the art movements, and being convinced that the technical and cultural complexity of life today makes a direct correspondence between functional order - utilitarian and strong functions - and formal order impossible as well, I should like to position architecture at a poetic level which is less dependent on other artistic movements and supported by some of the postulates championed by our admired functionalist architects.
In his reflections in a work entitled *Dr. Berlage and the 'New Objectivity'*, Johannes Duiker sheds light on his ideas about architecture which can be followed in this and other of his writings published in the magazine *De 8 en Opbow*[8]. In qualifying the statements Berlage makes in a magazine piece, Duiker upholds an idea he later reiterates which is the law of economy, though economy understood not simply as material economy but also as what he calls spiritual economy. The law of economy implies, in the first place, a process of dematerialization which aims for spaciousness, opening, sun, light and air and tends towards delicateness of materials and lightness.
As Duiker writes: "If the principle of Functionalism in Berlage's work has any cultural validity it is not because of its financial economy but rather its spiritual economy. This spiritual economy leads to the construction, which is possible or not depending on the material used and it grows as the work moves towards a state of dematerialization and spiritualization.[9]"
However, what is most interesting, precisely because it is unexpected, is that in order to refute Berlage's statement that "Art begins where technology leaves off", Duiker writes: "Inspiration, intuition, sentiment, artistry or whatever you wish to call it, led Berlage to the greatest technical solutions and thus he defined the spriritual validity of the resulting architecture....since inspiration, etc., as the initial driving force precedes the material decision throughout technical history. Nonetheless, the development of the driving force is only culturally valid if it follows the law of economy.[10]"
The statement that inspiration or intuition is the initial driving force not only in science and technology but in all cultural expression is surprising coming from an architect who is a partisan of strict Functionalism and radical Rationalism and it reveals a richness of thought which is reflected in the richness of his architectural work and which goes beyond the limits of mere functional determinism.
In his comments on a theatre set designed by Moholy-Nagy, Duiker states: "What turns the set into 'new functionalism' is Moholy-Nagy's spirit which created this set, understanding that the ideal of Functionalism can be found only through the extreme economy of materials and an extreme focusing of tensions."[11] These two ideas of economy of materials (and also of compositional solutions in general) and focusing of tensions could be taken as a 'walker's guide' through the territory which modern architecture has had to traverse until now and could even be considered a wager for the future. To give an example, I believe that the current team of Swiss architects, Herzog and de Meuron, could be considered a good example of car-rying on Duiker's idea.
However, if I may I would like to talk briefly, not about them, but about Alejandro de la Sota, an architect from the city of my birth, Madrid.
I believe de la Sota expresses through his works the best functionalist tradition whereby the building emerges as an inspired response to the basic conditions of the problem to be resolved and it achieves a poetic level through both the preciseness and, at the same time, imaginativeness of that solution. Essential elements of this poetic level are the economy of materials and focus of tensions which Duiker propounded. In effect we can speak of spiritual economy in the work of de la Sota as well, or what he called on one occasion, "simple simplicity"[12], together with a functional and technological choice: use of the new techniques and new materials which confer precision and lightness on the work without actually displaying the technical elements or solutions applied.
In each project, functionality is the search for the most efficient, economical and simplest solution possible. This simplicity to which de la Sota aspires and which, in fact, he achieves in his works is by no means easily attained or obvious, in spite of the fact that it seems to be a natural outcome of the application of certain technical solutions to resolve a concrete problem.
Modern architecture fluctuated between the breaking down of the building into a series of differentiated volumes, each corresponding to a functional unit, and the compact form, reducing the building to a single, simple volume. The three buildings by Alejandro de la Sota which I am going to discuss fall into a tightly balanced middle point between the volumetric composition of works by the functionalist architects and the pure prism of the houses designed by Le Corbusier in the 20s or Mies' American works. Each of the three examples by de la Sota is an exercise in balance in the superimposition or layering of a series of functions, a series of spaces each with a certain function. Layering and interconnecting a series of

materials, defining spaces and achieving a stable result is the foremost task in constructing. Making the layering seem light and effortless and achieving an ultimate balance, neither forcing the form, positioning and dimensions needed by each space nor putting constraints on its natural way of being and of being part of the whole, are features of good construction, Of what could perhaps be called architecture.

The first project which I will discuss, though the most recent chronologically, is a small house constructed in Galicia in 1976. In explaining the idea of the house the architect refers to a text by Eero Saarinen, according to which "Man's dwelling can be represented by a sphere cut at the equator by a ground plane. The lower semisphere is used for rest, inactivity, revival of energy and thought; the semisphere above the 0 plane is where man carries out his activity, where he acts on what he has thought. The former is of stony, earthy materials, the latter transparent, of glass."[13]

The idea of a building elevated above the ground natually calls to mind Le Corbusier's Villa Savoye, but its separation into two parts, one semi-buried, opaque, heavy, stony, intended for nocturnal functions and another, aerial, transparent, light, crystalline, in which daytime activities are carried out, may have found its inspiration in the Robert Wiley house in New Canaan, Connecticut, built in 1953 by Philip Johnson. This project, from Johnson's Mies period, is enormously attractive as a compositional display reflecting the idea, a perfect glass box - truly immaterial - set over a base which is neutral as a result of the homogeneous treatment of the masonry and the regularity of its spaces. Apart from the marked difference between the materials used, the key decision for the success of the project was the differentiation between one part and the other by a 90º turn.

De la Sota's project is less radical, less programmatic, more realistic and more focused on responding to a set of normal domestic circumstances and taking the best advantage of the small plot of land. The underground floor with the bedrooms is very tightly arranged both in terms of the connection between the bedrooms and in terms of the compactness of each type of bedroom: one features two beds end to end in order to leave as much open space as possible for opening and closing the windows and closet and the other features two cabin/bedrooms which open on a shared common space where, in the area which would otherwise be taken up by doors, the closets are located. The bathrooms are tightly arranged as well with solutions providing a separation of functions within the bathroom according to varying degrees of privacy required. In spite of its compactness, this floor is not one uniform mass but rather extends along one entire side of the site and is arranged in ascending half-floors connected by a strategically placed staircase.

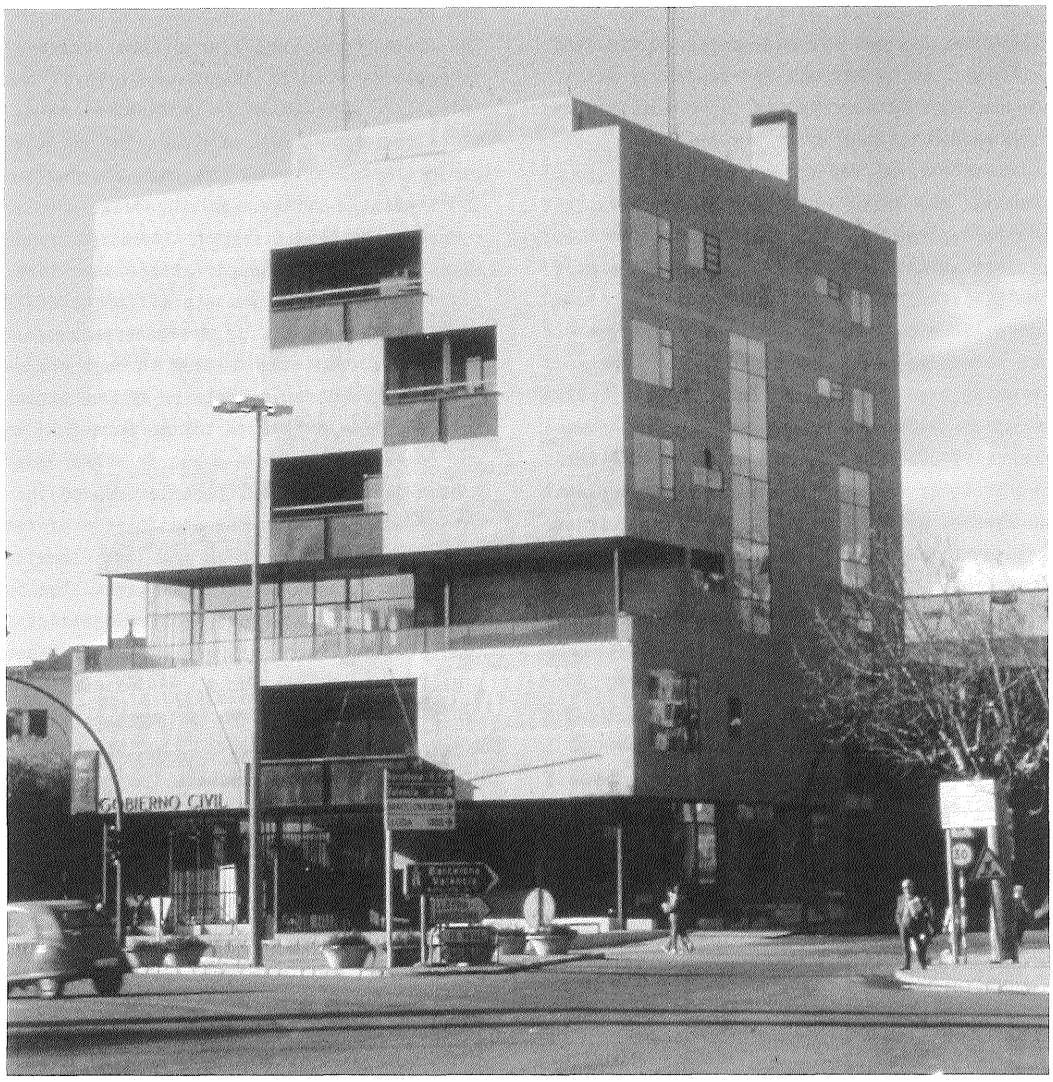
At the same time the land around the house is terraced, starting at sea level - the level at which the entrance to the house is located - and leading to the highest terrace which is almost at the level of the upper floor. The rear of the garden slopes irregularly down to the basement level thus providing this floor with natural lighting. It is in the upper floor where the house achieves the geometric perfection of a square, becomes a prism: pure, white and light. In contrast to the heavily compartmentalized basement floors, the upper floor is almost diaphanous though, at the same time, it is clearly structured by the positioning of the staircase - as was the Cook house designed by Le Corbusier - and can be compartmentalized through the use of sliding elements. In addition to the probable references in this work to the Robert Wiley house, the de la Sota project draws from the lessons of the French-Swiss master's Villa Savoye and the Cook house, but he also explores the possibility of interweaving part of the building with the land, something unthinkable in Le Corbusier's terms. The building, in fact, does not faithfully follow a strict stylistic tradition, neither that of Le Corbusier nor that of Mies, as is the case in the Philip Johnson project; de la Sota's project emerges more freely from the original idea and from the specific conditions of its placement and surroundings.

The building for the Gobierno Civil (Civil Government) of Tarragona, dated 1957, began with an apperently naive drawing, apparently simple, of the façade facing onto the square on which it stands. The idea was to layer a series of different floors, one on top of the other, which would each maintain its independence and functional hierarchy while, at the same time, forming a single outer shell which, as I have mentioned, is characteristic of these works by de la Sota.

This building can be compared to one of Le Corbusier's projects, the Governor's Palace of Chandigarh, dated 1951-1953. There is the similar monumental building front, as there is the hierarchically differentiated layering of the floors. However, while Le Corbusier opts for simplicity rather than figurative detail in the outer structure, de la Sota maintains both, creating a single image which can be broken down into parts, one which is synthetic and instantaneous but full of content.

In spite of a certain affinity with Terragni's work, as Juan Navarro states: "We are very far from an abstract complexity born purely from the visual arts. The abstraction of the Gobierno Civil is direct, an instantly formulated image - closer to Malevich's spontaneity than Mondrian's deliberations. It would be difficult to find as precise, as hypnotic, an icon in another work of contemporary architecture."[14]

The design of the Gobierno Civil building is based on two superimposed bodies, the office area and the private living quarters, so that, as the architect explains in his plans, it is two buildings, one on top of the other with a single façade which is one of the key achievements of the project. The other accomplishment was finding the appropriate scale for the building. The façade facing the square is the



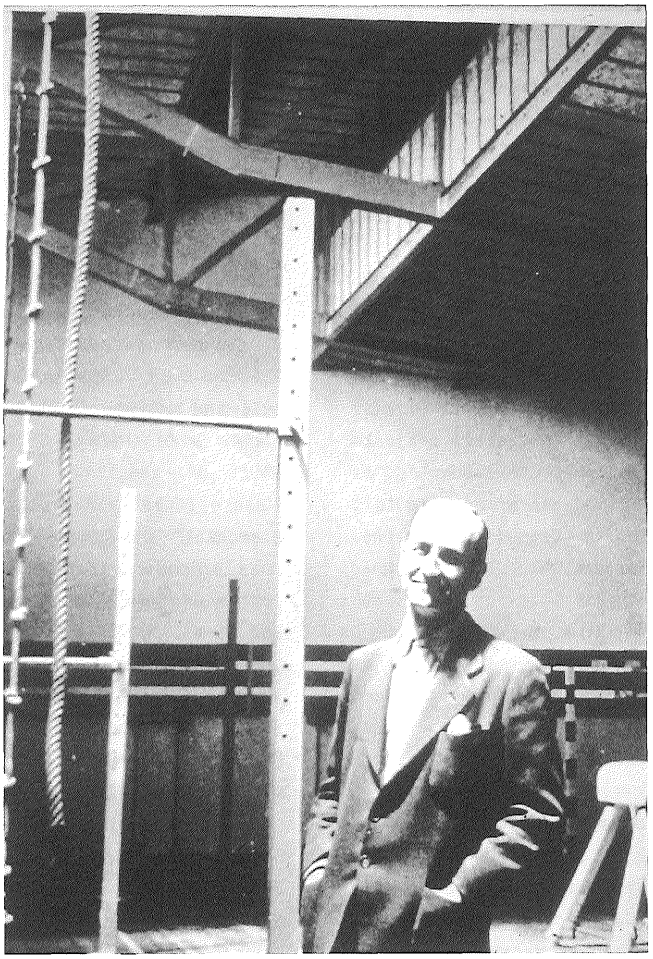
Gobierno Civil, A. de la Sota, Tarragona, 1957.(Iberian DOCOMOMO Register)

focus of intensity. There are two structures on columns, placed one on top of the other and almost meshed together both on the frontal and lateral planes of the building. The second floor, where the office spaces are located, projects slightly out towards the front and the sides. The subtle relationship of the structure to the exterior walls is essential to the differentiation between one floor and another; the two central columns of the structure on the front of the ground floor and the second floor suggest a gentle curve reflecting the curvature of the square while the wall of the building is consistently flat, though situated at varying depths.

What is dominant in the façade is the emblematic, almost totemic overall effect of the empty spaces opening on it. The depth, the impressive size, the clean cut and the individuality of the façade give the face of the building its representative features.

As author of this project, de la Sota shows himself to be a marvelous architectural acrobat by breaking the axis of symmetry only to reinstate it in the upper empty space and, above all, through the placement of the two off-centered windows meeting at an incorporeal geometric point. It is the marvel of acrobats who, by depending upon one another for the minimal necessary support and dangerously defying gravity, achieve a result at the end of the exercise - a figure, balanced, but at the very limit of that balance. Some of Paul Klee's drawings reflect this same tense and simultaneously risky and volatile balance where, as in the Gobierno Civil building, the lightness and virtual simplicity of the final figure is the result of the complex interaction of a system of forces. Referring back to what was said earlier, this point at which the two spaces merge is an expression of maximum economy in the encounter between the two elements and an expression of the maximum focus possible of tension in the entire façade; it is an example of Duiker's ideas carried out to the extreme and, to a large degree, is what makes this building fascinating. An analysis of the interior spaces requires mention, needless to say, of the transparency and diaphanous manner in which they have been handled.

The last example to which I shall refer is the Gymnasium of the Colegio Maravillas in Madrid, built in 1961 and considered to be this architect's



Alejandro de la Sota in the Gymnasium of the Colegio Maravillas, Madrid.

masterpiece; it was included on the list of the ten most important buildings of modern architecture in Spain and Portugal by the commission of the Iberian section of DOCOMOMO. While in the case of the home which I first discussed, the explanatory drawing of the building is that of a bubble and in the case of the Gobierno Civil it is that of the façade, in this case it is the cross section. This shows that the building compensated for a brusque metre drop in the level of the land[12] and that the interior space is crossed by two lines from the southern front to the retaining wall in the back: the line of the sun directed downwards and the line of the air directed upwards, both strictly functional aspects of lighting and ventilation but, in this case, carried out in a highly poetic manner. The cross section also shows the lightness, the effect of floating planes of the building's floors: the new floor created by the flat roof gravitating towards the convex roof structure and the ground floor gravitating towards the concave basement structure. Above all it shows the fundamental idea of the project which is to invert the roof structure which then provides space for an outdoor playing field, two levels of classes and offices, lecture halls and additional overhead lighting in the centre of the playing court. While in the two projects I previously commented upon we could still consider a certain sense of composition, of rules of art, in this project there is none of that, as the building is the direct realization, without compositional mediation, of a logical and successful idea.

We could compare this building with one of the emblematic projects of the radical Rationalists, the strict Functionalists, which is the Petersschule for Basel, presented in 1926 by Hannes Meyer in collaboration with Hans Wittwer. In this case as well the main issue was to create spaces for outdoor play. But without wishing to take credit away from the Meyer and Wittwer project, isn't their solution more rhetorical than simply logical, in comparison with de la Sota's? Isn't the projecting hanging double platform and the spectacular exterior stairway leading to the interior floors and the roof a form of structural boasting? Is it not,in the end, a less economical solution?

I will leave these questions unanswered and simply state that de la Sota once again was able with this building to put a varied series of functions within a simple, unadorned shell in keeping with the principle of economy of material and to concentrate the tensions of the building in one element, the inverted roof structure, thus creating some clear spaces and volumes which radiate intensity, in keeping with the principle of spiritual economy. Is this art? We don't know, nor does it matter, although in any case it would not be autonomous art but rather art which is dependent on the utilitarian needs of the building. What we can be sure of is that it is a tremendously satisfactory solution for the body and for the spirit, a strictly functional, profound and freely inspired answer to an architectural problem.

Notes

[1] See Alan Colquhoun. "Design Typology and Methods". In *Arquitectura moderna y cambio histórico*. Ensayos: 1962-1976. Ed. Gustavo Gili, Barcelona, 1978, pp. 61-74. Also in C. Jencks and G. Baird, editors. *El significado en arquitectura* H. Blume Eds. Madrid, 1975, pp. 296-308.

[2] See Carles Martí and Xavier Monteys. "La linea dura" 2C. *Construcción de la Ciudad*. Nº 22, April 1985, pp. 2-17.

[3] Montage is a basic word in film vocabulary, in both its theoretical and its technical application. However, it can extend to modern art in general and is a good expression of the sense of contemporary culture. See, for example, Vicente Sánchez-Biosca. *Teoría del montaje cinematográfico*. Ediciones de la Filmoteca de la Generalitat valenciana, Valencia, 1991 and Matthew Teitelbaum, editor. *Montage and Modern Life: 1919-1942*. The MIT Press. Cambridge, MA, 1992.

[4] See especially Andrei Nakov. "La revelación elemental" and "Los orígenes de lo elemental". In *Dada y Constructivismo*. Exhibition catalogue at the Centro de Arte Reina Sofía, Madrid, 1989, pp. 13-24 and 39-45.

[5] László Moholy-Nagy. *La nueva visión* and *Reseña de un artista*. Eds. Infinito, Buenos Aires, 1972 (1929), p. 81.

[6] See Barry Maitland. "The Grid" *Oppositions 15/16*, winter/spring 1979. pp. 91-117.

[7] Robert Venturi, Steven Izenour and Denise Scott Brown. *Aprendiendo de Las Vegas. El simbolismo olvidado de la forma arquitectónica*. Ed. Gustavo Gili, Barcelona, 1978 (1977).

[8] Johannes Duiker. "Dr. Berlage and the 'Nieuwe Zakelijkheid'". Collected, together with a series of other published writings in *De 8 en Opbouw*, in E.J. Jelles and C.A. Alberts. *Duiker. 1890-1935*. Amsterdam, 1976, pp. 132-33.

[9] op.cit. p. 132

[10] Ibidem, p. 132

[11] Ibidem, p. 134

[12] A. de la Sota. *Alejandro de la Sota. Arquitecto*. Eds. Pronaos, Madrid, 1989, book flap.[13] Ibidem, p.164

[14] Juan Navarro Baldeweg. "Madrid: Masters and Disciples". *The Architectural Review*. Vol. 179, nº 1071, May 1986.